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### The comparison of effective education methods to increase knowledge about Alzheimer's disease.

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The Comparison of Effective Education Methods to Increase Knowledge about Alzheimer's  
Disease

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Submitted in partial fulfillment of the requirements for graduation of *summa cum laude*

and

for graduation with Honors from the Department of Psychological and Brain Sciences of the

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### Abstract

Alzheimer's disease (AD) is a disease most people recognize, but have many misconceptions about. One way to decrease the amount of misconceptions about AD is to educate the general public on the disease. Many educational methods, such as person-centered care education, have been researched, but none have focused on the general public. Therefore, the purpose of this study is to compare two educational methods used today, reading a passage from a reliable online source (traditional educational method) and watching documentaries (person-centered care educational method), to find if a specific way of presenting them will prove efficient for Alzheimer's education. The methods were measured by utilizing various scales to assess the level of knowledge about the disease (ADKS), the amount of fear one has of getting the disease (FADS), and the level of comfort one has as a potential caregiver (Revised Scale of Caregiving Self-Efficacy and Overall Caregiving Scale). Participants were placed in one of four conditions; passage only, documentaries only, passage/documentaries, and documentaries/passage. There was no significance found with knowledge, fear, and comfort between the conditional groups. However, there was significance in scores seen between conditions based on previous experience and demographics of participants. Opinions of the educational methods were also analyzed. Future research should explore how these concepts increase or decrease knowledge, fear, and comfort about AD with a numerous and diverse population of participants.

## The Comparison of Effective Education Methods to Increase Knowledge about Alzheimer's Disease

Alzheimer's disease (AD), the most common form of dementia or memory loss, targets the older population and causes their thinking, behavior, and memory to deteriorate over time. According to the Alzheimer's Association, AD is the 6<sup>th</sup> leading cause of death and affects about 5.5 million Americans. Alzheimer's disease is projected to show a massive increase in the number of people affected worldwide. It is estimated that 115.4 million people will be diagnosed with Alzheimer's disease in the year 2050, more than three times the amount seen in 2010 (Prince et al., 2013).

In correlation to the rapidly rising number of people over 65 years old and cases of AD diagnosed, mortality rates due to AD have increased as well. It is due to this rapid increase and lack of control over the disease that the majority of people around the world recognize its name. Despite this, the general public's understanding of Alzheimer's is not as strongly universal. The general public's knowledge of AD is only fair to moderate according to a study done by Cahill, Pierce, Werner, Darley, and Bobersky in 2015. Another study noted that having misconceptions caused by having a low amount of knowledge about the disease can lead to false hope and inappropriate actions that can severely impact an individual with Alzheimer's (Eshbaugh, 2014). Misconceptions can also lead to the passing of misinformation to others; making false information widespread.

Misconceptions greatly affect the general public's understanding of Alzheimer's Disease. According to a study conducted by Eshbaugh (2014), the most noticeable widespread misconceptions seen among college students and young adults are about the risk factors and care options of AD. While over 75% of the participants showed knowledge of uncontrollable factors,

such as genetics, being partly responsible for the onset of Alzheimer's, they were generally unaware of manageable risk factors such as high blood pressure and increased cholesterol levels. In addition, many of the participants believed that most individuals who have Alzheimer's disease live in nursing homes and are receiving professional care. A small percentage of participants also misunderstood aspects such as the unavailability of a cure and recovery method.

Misconceptions in the general public can also arise based on the background or demographics of an individual. This impacts a person's level of knowledge about AD, making it necessary to analyze demographic differences of individuals in the general public. One aspect of demographics is race. In the United States, there is a significant difference in understanding AD among African American (AA) and White groups. In a study defining the differences between the two groups, it was noted that responses to facts about AD were primarily pronounced in three different statements (Connell, Roberts, McLaughlin, and Akinleye, 2009). The first statement was the belief that memory loss is part of normal aging. The AA group showed significantly higher belief that this statement was true. The AA group also showed more belief in false statements such as the possibility of AD being diagnosed by a blood test and that there has been a discovery of a specific gene that causes AD. These misconceptions among African Americans typically leads them to have less worry about getting AD, to not seek medical attention when necessary, to be more optimistic about AD diagnosis and treatment, and to pursue options to help reduce the risk of getting AD that are ineffective. However, they tend to have higher stress when thinking of the burden of AD on their family compared to Whites. These findings show that there is a significant difference in the understanding of AD among different racial groups, and it should therefore be under consideration when addressing AD the general public; which consists of diverse groups of people.

The demographic aspects of religion, gender, and age can also influence the knowledge and perceptions about AD. For example, it was found in a previous study that religion can correlate with race when examining the role of religious coping in AD caregivers. (Heo and Koeske, 2013) It was shown in the study that caregivers that are engaged in religious activities experience lower burden appraisal and depression. African American caregivers were found to use religious coping most commonly since it was more effective for them compared to Whites and Hispanics. In relation to gender, a study conducted by Werner, Goldberg, Mandel, and Korczyn in 2013 found that female participants showed significantly higher levels of perceived susceptibility, worry, fear, and knowledge about AD; despite no significant difference in awareness about AD being found between men and women. When considering differences in age, older adults are found to provide significantly different understandings of possible hardships while experiencing AD compared to younger adults. (Berry, Williams, Thomas, and Blair, 2015) For example, older adults were more likely to believe that a person with AD will have more difficulty remembering where objects are compared to a person who is healthy.

When people in the general public lack knowledge and understanding of AD, their fear of developing the disease can greatly increase. For example, knowing that there is no cure for AD could cause someone to become fearful of potentially developing it as they age. This can lead to the fear of having AD prematurely (French, Floyd, Wilkins, & Osato, 2012). For instance, a 65-year-old woman who forgets her keys one morning could believe she has developed early Alzheimer's. This instance is called anticipatory dementia, in which a person mistakes normal memory problems as an indication of onset dementia or Alzheimer's. Education of AD may decrease anticipatory dementia and the development of anticipatory fear.

In summary, there is a vast amount of diverse misconceptions and a wide range of understanding about Alzheimer's Disease among the general public. Those aspects can also be increased or lessened by factors such as experience, demographics, and personal fear of the disease. It is because of this that AD education that is effective for individuals of the general public and that includes general knowledge of AD, its symptoms, and its impact on those diagnosed and caregivers is greatly needed.

A variety of previously researched dementia education approaches aim to teach people about dementia and decrease the spread of misconceptions about Alzheimer's disease. Traditional healthcare education has been the most commonly used method of education for people with long-term conditions such as AD. It consists of a series of discrete and short-term clinical placements for students to have supervised experience with patients of this nature (Banerjee et al., 2016). In recent years, however, there has been a rise in concern about its effectiveness. Banerjee states that traditional healthcare education is not well suited for understanding long-term conditions, such as Alzheimer's, in terms of the impact it has on one's experience with the disease. In other words, it is suitable for teaching facts concerning AD, but not for understanding the experience of living with the disorder or caring for someone with it. The understanding of those hardships is often lost in learning about AD, making people who are diagnosed and their family and friends unsure of what to expect and do. Therefore, it is important to have an additional educational method that is efficient, easily understood, and details the experience of Alzheimer's as a patient and as a caregiver.

In recent research, another method of Alzheimer's education has been developed that includes understanding the experiences of AD. Person-centered care (PCC) is a care method that gives a stronger emphasis on a person's personality and experience to evaluate the person's

strengths and needs as they face Alzheimer's disease (Barbosa, Sousa, Nolan, & Figueiredo, 2015). The importance of understanding a person's strengths and needs is to implement care that is best suited for the individual and that considers their personal opinions and level of comfort. PCC strives to educate people on interaction skills to help decrease any fear and uncertainty they have about AD (Bradley et al., 2010). Several effective PCC methods have already been researched including interactive modules, intensive training sessions, case studies and readings. For instance, in Bradley's study, written and digital modules were created to test PCC on students. The modules were created using a team of experts on dementia and Alzheimer's (e.g. practitioners) so they could ensure researchers used realistic aspects and correct statements in their study. This demonstrated the importance of not only showing correct information about AD, but also realistic and relatable information.

Another example of how PCC education can be implemented is through videos or documentaries of patients with dementia or Alzheimer's. In one study, PCC effectiveness in dementia and Alzheimer's education was tested on clinical patients over the age of 40 who hadn't experienced AD or advanced dementia with someone in a close relationship to them (Deep, Hunter, Murphy, & Volandes, 2010). By comparing videos of patients that had either AD or dementia with a verbal description read by the researchers, this study was able to analyze each educational method's effectiveness. The effectiveness was measured by the participants' preferences for future care, including life-prolonging, limited or comfort care. When the preferences were compared between the description and videos, a significant number of participants changed their preferred care option from lengthening life to comfort care. Their rationale for the change was because comfort care, discussed heavily in the videos, focused on providing comfort to the person experiencing AD or advanced dementia and their



families/caregivers instead of the treatment considerations provided in the verbal description. Because of this, it was implied that the videos may serve an important role in educating people on aspects of dementia and Alzheimer's by focusing on experience in addition to treatment options and symptoms.

In several studies, traditional healthcare and PCC educational methods have proven their effectiveness in AD education. However, there is one noticeable aspect that raises concern. Several studies that utilized traditional healthcare or PCC education only assessed persons who already had experience with AD. The study that used traditional education programs was directed towards university students, healthcare professionals in training, and people with dementia (Banerjee et al., 2016). The study of PCC done by Barbosa, Sousa, Nolan, and Figueiredo researched residential aged care facility staff that cared for people with dementia. Healthcare practitioners, consumer representatives for people with dementia, and healthcare students participated in another PCC study mentioned (Bradley et al., 2010). The general public was addressed more in one previous study cited, but it was limited to adults over the age of 40 (Deep, Hunter, Murphy, & Volandes, 2010). These limitations raise concern since misconceptions are found throughout the general public ages 18 and older, without regard to level of experience or background. Also, even though the level of knowledge about AD may be significantly low today in the general public, future increases in AD diagnoses causes the chances of exposure to AD to greatly increase. Therefore, it is critical to further test traditional healthcare and PCC education methods to understand how utilizing them can benefit the general public.

The current study examines whether the two educational methods studied previously, traditional healthcare and PCC education, can increase knowledge and understanding of

Alzheimer's disease for the general public while in turn decreasing fear of getting AD and increasing comfort as a potential caregiver. The current study design uses the methods conducted by Deep, Hunter, Murphy, and Volandes (2010) as a basis. The two educational methods chosen for the study are reading a passage from the Alzheimer's Association information pages (Alz.org), since this is a common resource for the general public to use to obtain AD information (traditional dementia education), and documentaries recorded by HBO for realistic, visual examples of those with AD (person centered care education). The documentaries are an efficient way for people to get PCC education, similar to the videos used in Deep, Hunter, Murphy, and Volandes's study. The purpose of taking this approach is to explore educational methods for AD to find the best way for them to be presented to the general public, either separately or combined.

In addition to the educational methods' effectiveness concerning knowledge, fear, and comfort, differences between demographics and previous experience will also be taken into consideration. Since previous studies have noted significant knowledge differences based on race, age, and gender, they will be analyzed in this study. Religion has also been noted to provide an impact on AD understanding. Analyzing these factors is crucial to determine if any specific demographic influences the scores representing knowledge, fear, and comfort. Previous experiences will be analyzed similarly to determine if it significantly influences the scores in knowledge, fear, and comfort.

Thus, the objective of the study is to understand which method of presenting Alzheimer's disease education, either reading the passage, watching the documentaries, or both, can achieve the three goals of most knowledge about the disease, most comfort level as a potential caregiver, and least fear of obtaining Alzheimer's. It is expected that the combination of reading the

passage and watching the videos, in this specific order, will be most effective at achieving all three goals.

## **Method**

### **Sample**

The educational methods and questionnaires were administered to adult students and the general public through advertisements and fliers placed around Louisville and through providing psychology course credit for University of Louisville students.

Potential participants were excluded if they were not 18 years old or older. They were also excluded if they did not provide complete data in each scale or questionnaire.

### **Procedures**

Participants participated using their own computers in the place of their choice. They were randomly assigned prior to the survey into one of four educational conditions or groups; reading the passage only (passage only), watching the documentaries only (documentaries only), reading the passage then watching the documentaries (passage/documentaries), or watching the documentaries then reading the passage (documentaries/passage). Once assigned, participants followed the link presented to them on the advertisements and fliers to reach the survey and modules on Qualtrics. Once they read over the informed consent, they could begin the survey. The participants were asked to complete questions about demographic information prior to the module(s). Then, they either read the passage about Alzheimer's, watched the two documentaries, or did both depending on the group they were randomly assigned to. Those assigned the documentaries were able to access them by following a link in the survey and placing it in another window on their web browser. Those participants returned to the survey to

continue by closing the window with the videos. Participants were then asked to complete the five scales/measures listed below. Once these were completed, the participant completed the survey and exited out of the webpage. Participants' answers were stored on the Qualtrics system until the data was exported for analysis.

## **Materials and Measures**

### *Demographic Information*

Participants were asked to provide their gender, race, age and religious statuses. Gender, race, and religion were asked using previously used and appropriate scales. They were also asked to provide information of previous experience with Alzheimer's disease. Participants were asked if they have ever taken a class discussing Alzheimer's, if they have ever experienced a person significant to them with Alzheimer's, and if they have ever been a caregiver for someone with Alzheimer's.

### *Alzheimer's Disease Knowledge Scale (ADKS)*

The Alzheimer's Disease Knowledge Scale focused on assessing the level of knowledge a person has about Alzheimer's disease. It consisted of 30 items that tested a person's knowledge in the areas of risk factors, assessment and diagnosis, symptoms, course, life impact, caregiving, and treatment/management. The items were asked in a true/false format. It has been proven reliable for testing knowledge of Alzheimer's (Carpenter, Balsis, & Otilingam, 2009).

### *Fear of Alzheimer's Disease Scale (FADS)*

The Fear of Alzheimer's Disease Scale was a valid and reliable measure to "demonstrate negative attitudes concerning the development of Alzheimer's" (French, Floyd, Wilkins, &

Osato, 2012). It included 30 items that consisted of three factors; general fear, physiological symptoms, and fear of what can occur when an individual develops Alzheimer's. The participants answered the questions about fear of Alzheimer's using a five item Likert-type scale. The answers that can be chosen by the participant were "never" (lowest amount of fear), "rarely", "sometimes", "often", and "always" (highest amount of fear).

Because this study included young adults, only 21 items were presented to participants. Some questions, such as "When I forget something, I am apt to think that I am getting Alzheimer's", would be irrelevant to young adults since it is not possible to develop Alzheimer's at a young adult age. Some questions related to actions possible from thinking about Alzheimer's, such as having trouble sleeping, were also excluded since some participants may not have had any knowledge of Alzheimer's prior to this study.

#### *Revised Scale for Caregiving Self-Efficacy*

This scale, with support as an "assessment tool in clinical and research setting" (Steffen, et al., 2002), was a way to assess the self-efficacy of caregivers. For the current study, participants were told prior to these questions, "Please answer the question as if you were the primary caregiver to someone close to you diagnosed with Alzheimer's (described below as the care recipient). Please think about each one and tell how confident you are that you could do each item. Rate your degree of confidence from 0 to 100 using the scale given below." The scale asked the participants' confidence on certain aspects including physical strength, obtaining respite, responding to disruptive patient behaviors, and controlling upsetting thoughts about caregiving. There were 19 questions in total which were ranked from 0 (cannot do at all) to 100 (certain can do). Participants chose any number between 0 and 100 to represent their confidence levels.

This scale was beneficial to understanding the level of comfort a person has as a potential caregiver, but there were several questions not used in this study due to irrelevancy. Only 9 of the questions were used and some of them required modification. Some questions were excluded because they were redundant or not significant to young adults. The questions used from the “Obtaining Respite” questions required modification from “Can ask a friend to stay with...” to “Staying with the care recipient...” so the participants were required to envision themselves as the caregiver.

#### *Overall Caregiving Scale*

This scale was created specifically for this study to analyze overall confidence after viewing specific scores from the Revised Scale for Caregiving Self-Efficacy. It asked the participant how comfortable they would be as a primary caregiver to someone close to him/her. This was determined by a rank of 0 (very uncomfortable) to 100 (very comfortable).

An open-ended question that asked participants to explain the reasoning for their rank followed the previous questions.

#### *Opinion on Alzheimer's and Educational Methods*

This scale consisted of three separate questions which asked for open-ended responses. The first question asked the participant what he/she thinks it would be like living with Alzheimer's following the module(s) they experienced. The second question asked the participant what he/she thinks it would be like as a caregiver for someone with Alzheimer's following the module(s) they experienced.

The last question presented to the participants asked their opinion on the module(s) presented to them and their usefulness to learning about Alzheimer's disease. Participants who

viewed either the passage or documentaries only were asked if they believed the module viewed to be helpful in learning about AD. Participants who viewed both modules were asked if they believed the modules were helpful and which of the two seemed more helpful in learning about Alzheimer's. This was asked in an open-ended question format.

## **Results**

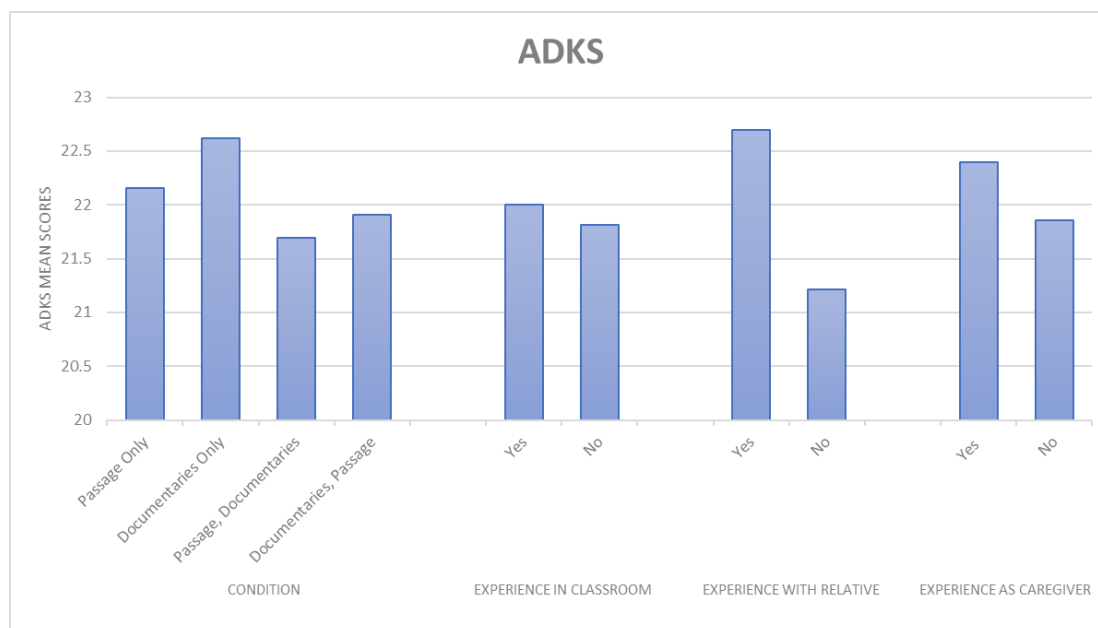
A total of 115 participants were recruited and began the study online. 98 of these participants provided complete data and therefore represented the sample used in the analysis. One participant completed all but one questionnaire (Revised Scale for Caregiving Self-Efficacy), allowing the data collected in all other areas to be represented in the sample. The participants included 74 women and 23 men ages 18-80 years old. 73 of 98 (74.5%) participants were Non-Hispanic White or Euro-American, 9 of 98 (9.18%) were Black, Afro-Caribbean, or African American, and 16 of 98 (16.3%) were of other racial or ethnic heritage. Half of the participants showed experience with AD by learning it in a classroom, but only 46.9% have witnessed a person close to them having AD and only 10.2% have been a caregiver for someone with AD.

In addition, Qualtrics randomly distributed participants into the passage only (N=26), documentary only (N=26), passage/documentary (N=23), and documentary/passage (N=23) conditions. Distribution of previous experience and demographics between conditions was equally distributed through randomization. Analysis on both factors yielded no significant difference in number of participants with a specific experience or demographic between the four conditional groups.

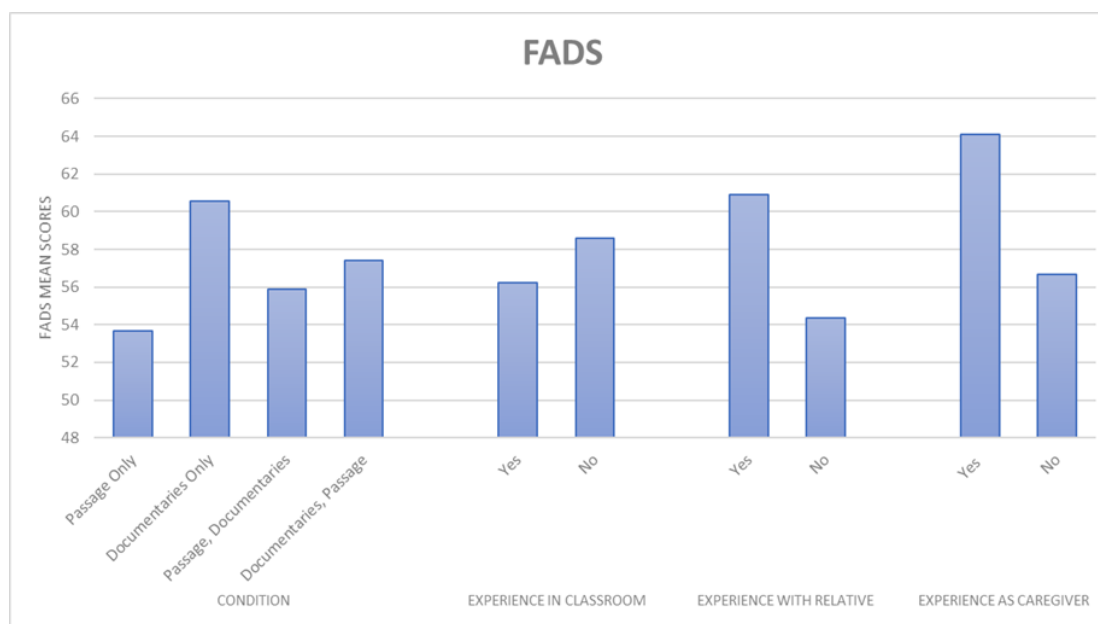
Figures 1 through 3 provide visuals to show distribution of mean scores by conditional group for the scales ADKS, FADS, and Revised Scale for Caregiving Self-Efficacy respectively. The mean scores of each specific category (passage only, documentaries only, passage/documentary, and documentary/passage) can be viewed in Table 1. Table 1 validates that the conditional groups do not significantly differ from one another based on the mean scores. Using One-Way ANOVA analysis, there was no significance measured for the scales ADKS ( $p = 0.419$ ), FADS ( $p = 0.301$ ), and Revised Scale for Caregiving Self-Efficacy ( $p = 0.762$ ) in relation to conditional group.

Figures 1 through 3 also demonstrate distribution of scores for each previous experience group. The mean scores of each specific category (yes and no) can be viewed in Table 1. When analyzed using One-Way ANOVA, there was significant differences in certain scales when participants had experience with a relative or family member with AD and when participants had experience as a caregiver. Having experienced a relative or family member with AD produced significantly higher scores on the ADKS scale ( $p = 0.03$ ); showing that a significantly higher knowledge of AD can be obtained from having this experience. The experience of a relative or family member with AD also produced significance with the FADS scale ( $p = 0.037$ ). This significance showed that having this experience produced significantly higher fear of obtaining AD. This experience was extremely close to significance with the Revised Scale for Caregiving Self-Efficacy ( $p = 0.059$ ); showing that having this experience almost significantly influences higher comfort as a potential caregiver as well. Significance was also found for having experience as a caregiver ( $p = 0.013$ ); demonstrating that having been a caregiver for someone with AD produces a significantly higher comfort as a potential caregiver.

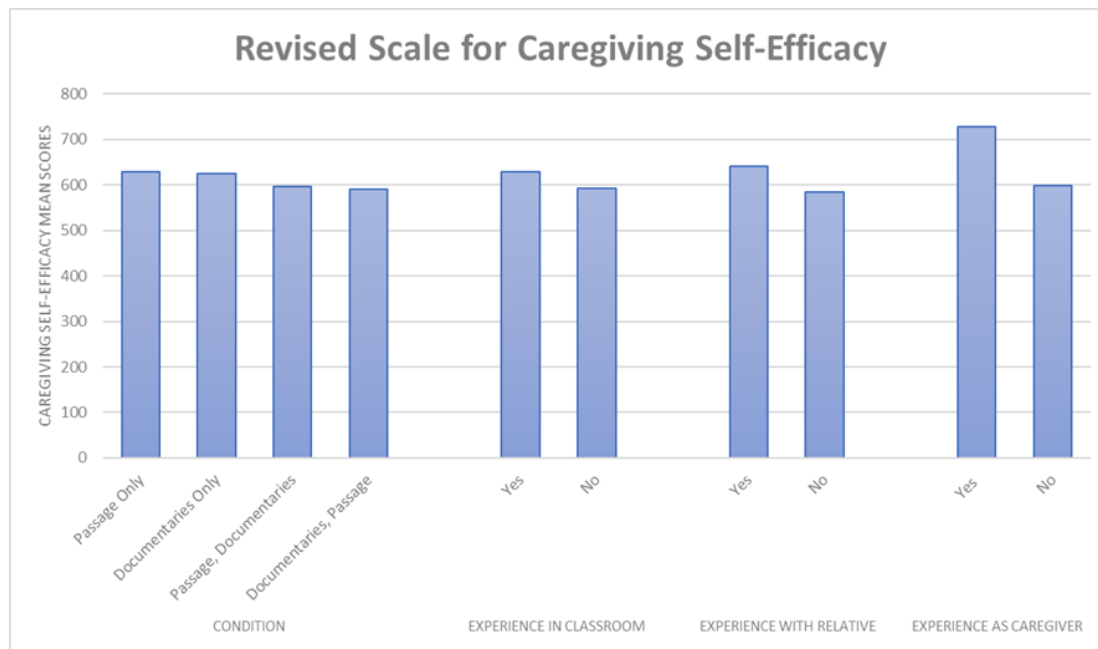




**Figure 1.** ADKS mean scores observed in each condition and previous experience group



**Figure 2.** FADS mean scores observed in each condition and previous experience group



**Figure 3.** Revised Scale of Caregiving Self-Efficacy mean scores observed in each condition and previous experience group

**Table 1** Descriptive statistics for Figures 1-3

| Scale/Measure  | Group                    | Specific Categories for Groups | Mean Scores | Significance (p < 0.05) |
|--|--------------------------|--------------------------------|-------------|-------------------------|
| ADKS<br>(Figure 1)   | Condition                |                                |             | 0.419                   |
|  |                          | Passage Only                   | 22.1538     |                         |
|  |                          | Documentaries Only             | 22.6154     |                         |
|  |                          | Passage, Documentaries         | 21.6957     |                         |
|  |                          | Documentaries, Passage         | 21.9082     |                         |
|  | Experience in Classroom  |                                |             | 0.790                   |
|  |                          | Yes                            | 22.0000     |                         |
|  |                          | No                             | 21.8163     |                         |
|  | Experience with Relative |                                |             | 0.03                    |
|  |                          | Yes                            | 22.6957     |                         |
|  |                          | No                             | 21.2115     |                         |
|  | Experience as Caregiver  |                                |             | 0.630                   |
|  |                          | Yes                            | 22.4000     |                         |
|  |                          | No                             | 21.8523     |                         |
| FADS<br>(Figure 2)   | Condition                |                                |             | 0.301                   |
|  |                          | Passage Only                   | 53.6538     |                         |
|  |                          | Documentaries Only             | 60.5769     |                         |
|  |                          | Passage, Documentaries         | 55.8696     |                         |
|  |                          | Documentaries, Passage         | 57.4184     |                         |
|  | Experience in Classroom  |                                |             | 0.425                   |
|  |                          | Yes                            | 56.2245     |                         |
|  |                          | No                             | 58.6122     |                         |
|  | Experience with Relative |                                |             | 0.037                   |
|  |                          | Yes                            | 60.8913     |                         |
|  |                          | No                             | 54.3462     |                         |
|  | Experience as Caregiver  |                                |             | 0.130                   |
|  |                          | Yes                            | 64.1000     |                         |
|  |                          | No                             | 56.6591     |                         |
| Revised Scale<br>for Caregiving<br>Self-Efficacy<br>(Figure 3) | Condition                |                                |             | 0.762                   |
|  |                          | Passage Only                   | 627.8077    |                         |
|  |                          | Documentaries Only             | 624.5600    |                         |
|  |                          | Passage, Documentaries         | 597.2273    |                         |
|  |                          | Documentaries, Passage         | 589.5217    |                         |
|  | Experience in Classroom  |                                |             | 0.256                   |
|  |                          | Yes                            | 628.2500    |                         |
|  |                          | No                             | 593.3125    |                         |
|  | Experience with Relative |                                |             | 0.059                   |
|  |                          | Yes                            | 641.4889    |                         |
|  |                          | No                             | 583.6863    |                         |
|  | Experience as Caregiver  |                                |             | 0.013                   |
|  |                          | Yes                            | 727.5556    |                         |
|  |                          | No                             | 598.7011    |                         |

The mean scores of the three scales based on demographics (race, gender, and age) were also analyzed for significant differences. There was no significance found with One-Way ANOVA analysis between racial/ethnic heritage groups and the scores seen on ADKS ( $p = 0.646$ ), FADS ( $p = 0.500$ ), and Revised Scale for Caregiving Self-Efficacy ( $p = 0.864$ ). There was also no significance between gender and scores seen on ADKS ( $p = 0.070$ ), FADS ( $p = 0.910$ ), and Revised Scale for Caregiving Self-Efficacy ( $p = 0.502$ ). However, there was significance seen when the regression of age was taken in comparison to ADKS. According to this study, as a person ages their knowledge about AD significantly increases ( $p = 0.019$ ,  $B = 0.072$ ,  $R^2 = 0.056$ ).

### **Discussion**

It was hypothesized that presenting Alzheimer's information to the general public by reading a passage and watching documentaries, in this specific order, would be most effective at achieving the highest knowledge of the disease, the highest comfort as a potential caregiver, and the lowest fear concerning the disease. However, there was no significant effect on knowledge, fear, and comfort scores based on the condition the participants were placed in and therefore no support for the hypothesis.

However, there were several important aspects that influenced the knowledge, fear, and comfort scores beyond what was hypothesized. Having experience with a relative or family member was seen to be significant in two scales (ADKS and FADS) and almost significant in the other (Revised Scale of Caregiving Self-Efficacy). Also, having been a caregiver for someone with Alzheimer's is significant in Revised Scale of Caregiving Self-Efficacy comfort scores. This demonstrates that when people experience AD in who they know well, this significantly impacts both their understanding and view of AD. Furthermore, these experiences can be

categorized as effective PCC educational methods since they encourage incorporation of peoples' knowledge of the person diagnosed, that comes from their experiences with him or her, to implement care that will best benefit the diagnosed person. Despite significance being seen in all other previous experiences, having experience learning about AD in a classroom does not have a significant effect on the general public understanding AD. This is because there was no significance between classroom experience with AD and any scale given. In summary, having first-hand experience with someone in close relations to one's self is in direct correlation to high knowledge, fear, and comfort concerning AD.

Even though there have been several previous studies indicating that different racial and ethnic groups have significantly different understandings about and responses to AD, there was none found in this current study. The scores seen between racial groups observed was evenly distributed. This is most likely due to the limitation of participants recruited, which is stated in detail in the limitations section below. Gender also presented no significance, but females were seen with almost significantly higher knowledge scores in the ADKS than men. This follows closely with what the 2013 study done by Werner, Goldberg, Mandel, and Korczyn found; that female participants demonstrated significantly higher knowledge about AD. Therefore, gender presents the possible trend of affecting one's understanding of AD. This trend could be possible due to many factors. For example, the fact that women have been caregivers of families for centuries or that women tend to live longer than men could influence this trend.

Age was shown to be significant in relevance to knowledge of AD. Analysis showed that as age increases, knowledge about AD increases. This can be due to the likelihood of one experiencing AD, either through a person they know (e.g. family or friend) or having AD themselves, increasing over time. For instance, as children, we may experience a close

grandparent with Alzheimer's. As adults, we may also experience a parent with Alzheimer's and become a caregiver for them.

The overall caregiving scale provided helpful insight for understanding the level of comfort seen in participants. When asked how comfortable they would be as a primary caregiver to someone close to them with AD, many participants who scored lower than an 85 out of 100 on the overall caregiving scale stated common themes. The task of a caregiver of someone they knew was said to be detrimental and a "mental toll" by several of these participants. Also, since being a caregiver would be very demanding and time consuming, it would take away from their own life plans, goals, and wishes. This was something a number of these participants stated would heavily go against their desires in life. Another theme stated by several of these participants was that they didn't feel comfortable as a caregiver since their knowledge, training, experience, and/or having a patient and kind personality needed to provide "good caregiving" were lacking in their opinions. They stated they were afraid of making mistakes and "messing up". Out of the participants that scored an 85 or above on the overall caregiving scale, there were three common statements made. The first was that it is the responsibility of a child to care for a parent in need of help. It was also stated that these participants want to help care for someone with AD because they love them. Many of these high scoring participants specified that they have had a family member or someone they know experience AD, making them feel more comfortable if the need for them to become caregivers would arise. The last common theme among highly comfortable participants was that they would prefer to take care of a family member or relative with AD rather than a stranger.

Opinions of participants given in the Opinion on Alzheimer's and Educational Methods questions also provided helpful insight to understanding comfort as a caregiver and anticipation

to what it would be like to live with AD. The opinions stated for these two questions were equally seen through all four conditional groups. When asked what it would be like as a caregiver, many participants stated negative responses such as it would be difficult, “mentally taxing”, sad/depressing, emotionally hard, and or stressful to be a caregiver. However, some participants stated that despite its hardships, caregiving would be a rewarding experience. When participants were asked what it would be like to live with AD, many stated that losing their independence and memory would be extremely hard, but that it wouldn't be “so scary” when they didn't recognize or remember about the AD affecting them. The terms “confusing” and “frustrating” were also used as descriptive terms very often. These opinions, from both questions, show a high level of fear, anxiety, and negativity towards the effects of Alzheimer's disease common in participants.

The final questionnaire (the Opinion on Alzheimer's and Educational Methods) which asked their opinion on the module(s) presented to them and their usefulness to learning about Alzheimer's disease, showed differences based on the condition participants were placed in. Most of the participants from all conditions indicated that the educational methods provided to them were beneficial in to learning about Alzheimer's. The participants who did not find it beneficial indicated so because they had already taken a class and believed they didn't learn anything new. In the “reading only” condition, multiple participants stated they learned several new facts about AD from reading the passage. However, two participants in this condition mentioned how more education is needed to completely understand AD and being a caregiver. This demonstrates and further confirms the shortcomings of traditional healthcare education seen in previous research. In the “documentary only” condition, many participants stated that watching the videos helped them learn more about the disease and gain valuable knowledge

about being caregiver. Nevertheless, one participant mentioned how the documentaries didn't give new information and that it only showed "the minds of the caregivers" while not providing "concrete information to answer the questions [from the scales] effectively." This reveals that only providing documentaries could limit the amount of information necessary to increase knowledge about AD.

For the conditions that presented both educational methods, different opinions were made in contrast to the conditions mentioned previously. In the "passage/documentary" condition, when participants were asked if they believed one educational method to be more helpful than the other, they stated either that the documentaries were more helpful or that the passage and documentaries were equally helpful. Those that stated the documentaries were more helpful listed it was because the videos were interesting and provided real examples that made learning about AD easier and more beneficial to those who haven't experienced AD compared to reading the passage. In the "documentary/passage" condition, the documentaries were said to be more helpful than the passage by several participants for the same reasons as in the "passage/documentary" condition. Many other participants also stated that both methods were equally helpful. However, there were two participants in this condition that stated the passage was more helpful to them because they learned information better when presented in writing. These opinions stated in both conditions express the possibility that visual examples of AD can be significantly more beneficial in increasing knowledge in the general public. It also expresses the need to consider individual preferences in learning in addition to demographics and experience to optimize the learning of AD in the general public.



## **Limitations**

Limitations of the current study include the low number and diversity of participants. Only 98 participants were analyzed that received notice of the study only through advertisement in Louisville, KY and social media. This meant most of the participants were from the Louisville area. In addition, a significantly high number of participants were Caucasian, female, ages 18-23, and/or Christian relative to other races, genders, ages, and religions. To represent the general public more accurately, there should be more diversity in these demographic areas with the participants recruited. Another limitation to the study was religion not being fully analyzed. Religion was not analyzed due to 14.8% of participants being atheist/agnostic or without a religion and 84% of participants that stated they currently belong to a religion being of the Christian faith. Therefore, there was not enough variety in religious groups to provide results to analyze without assumptions. The final limitation of this study was time. Due to a limited amount of time to complete the study, the knowledge, fear, and comfort levels of participants was only analyzed after being presented the passage and/or documentaries.

## **Conclusions**

This research has great potential to providing effective Alzheimer's education to the general public. The goal of this research is to allow anyone who wishes to learn about Alzheimer's disease to fully understand what it is and how it impacts lives by utilizing educational methods best suited for an individual's level of experience and demographics. The goal also envisions how, through understanding the knowledge and perceptions the general public has of Alzheimer's, misconceptions can be combatted and lessened.

## **Future Research**

Even though this study didn't produce significance for the hypothesis tested, there is still a potential for future research to better understand how the traditional and PCC educational methods can affect the general public's knowledge and understanding about Alzheimer's. In addition to the procedures conducted this study, the following suggestions can prove useful to better understanding the correlation between the educational methods and knowledge. Firstly, this type of study should be formatted in a pre-test/post-test fashion to gather the level of knowledge, fear, and comfort concerning AD before and after presentation of the educational methods. This would allow analysis of differences between before and after presentation scores to discover if the educational methods can improve the three the areas of knowledge, fear, and comfort for each participant. Measuring improvement or decline in scores can provide crucial intelligence on if the educational methods are effective in education for the general public.

In future studies, there should also be a larger number of participants recruited that come from diverse backgrounds. By analyzing more diverse participants, the general public can be better represented in the data collected and give better insight about how the educational methods would affect the general public.

Creating more diverse educational methods could also significantly aid in future research. Since these educational methods are being evaluated on the general public, which includes persons of multiple races, ages, religions, and genders, providing varying information and means of AD education to different demographic groups could be effective. For instance, since African Americans have been researched to be notably more stressed about how AD will impact family, but have demonstrated having several misconceptions, perhaps tailoring AD education to provide more medical practice information (traditional education) in comparison to information on how

AD impacts family members (PCC) would be more beneficial for that specific group of individuals. Succinctly, effectiveness of this study could be heightened by modifying the traditional and PCC Alzheimer's education modules presented based on known factors of different demographics to offer more information in areas where more misconceptions occur.

Lastly, since significance was viewed in the age of participants and in previous experience with AD, these factors should be monitored or excluded from future studies. The age of participants should be questioned to understand and analyze knowledge, fear, and comfort differences relative to age. Future participants should be excluded if they have experienced Alzheimer's with a relative or family member and/or with being a caregiver for someone with the disease. By excluding these participants, the level of knowledge, fear, and comfort with participants can be measured without previous experience as a potential correlational factor.

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